

Health security landscape in the EU

European Commission



Directorate-General for Health and Food Safety (DG SANTE)



Joint Research Centre (JRC)

Executive agency



Decentralised agencies



EUROPEAN MEDICINES AGENCY



EUROPEAN CENTRE FOR DISEASE PREVENTION AND CONTROL



EUROPEAN FOOD SAFETY AUTHORITY

European reference laboratories



Public Health



Food safety and animal health

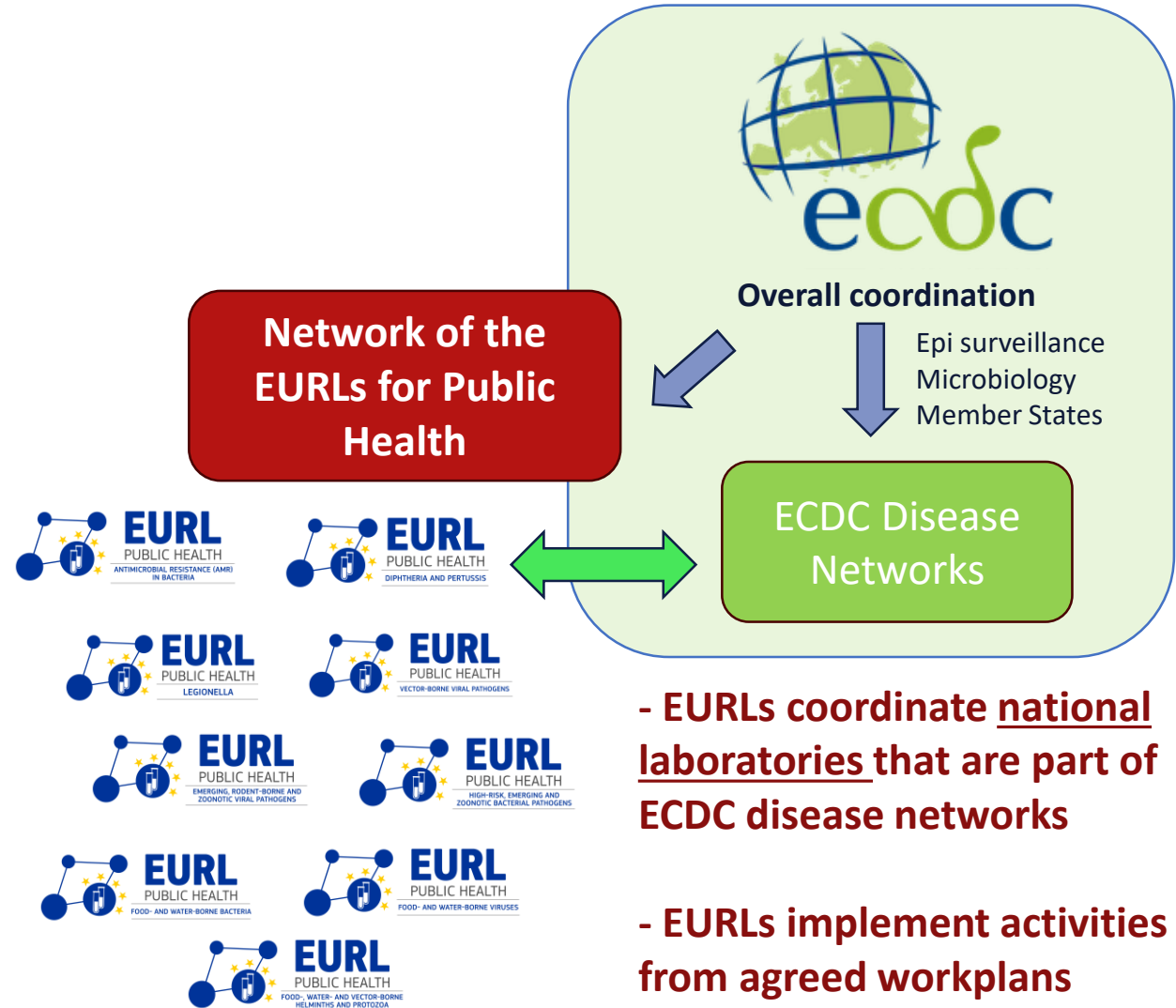


In Vitro Diagnostics

Implementation of the EURLs in Public Health

Art. 15 of Reg (EU) 2022/2371:

- The network of EURLs is operated and coordinated by the ECDC
- EURLs are responsible for coordinating national laboratories in the following areas:
 - *reference diagnostics*
 - *reference material resources*
 - *external quality assessments*
 - *collaboration and research*
 - *scientific advice and technical assistance*
 - *monitoring, alert notifications and support in outbreak response*
 - *training*



EURLs for public health (EURL-PH)

- AMR in bacteria
- Diphtheria and pertussis
- Emerging, rodent-borne and zoonotic viral pathogens
- High-risk, emerging and zoonotic bacterial pathogens
- *Legionella*
- Vector-borne viral pathogens

2023/24
EU4H €21.7 M
7 years

- Food- and water-borne bacteria
- Food-, water- and vector-borne helminths and protozoa
- Food- and water-borne viruses










2024/25
EU4H €20.5 M
7 years

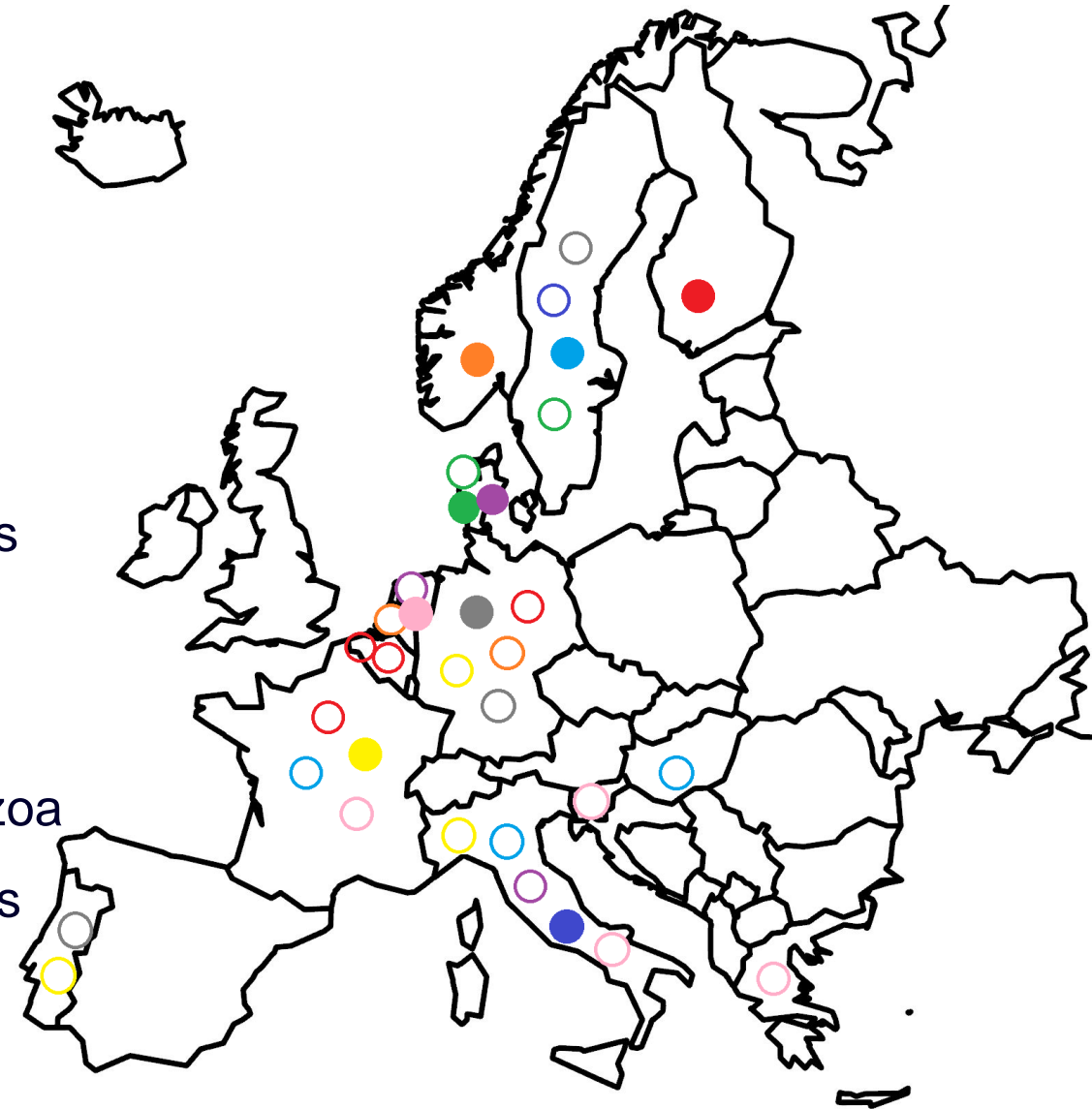
- Respiratory viruses

2025/26

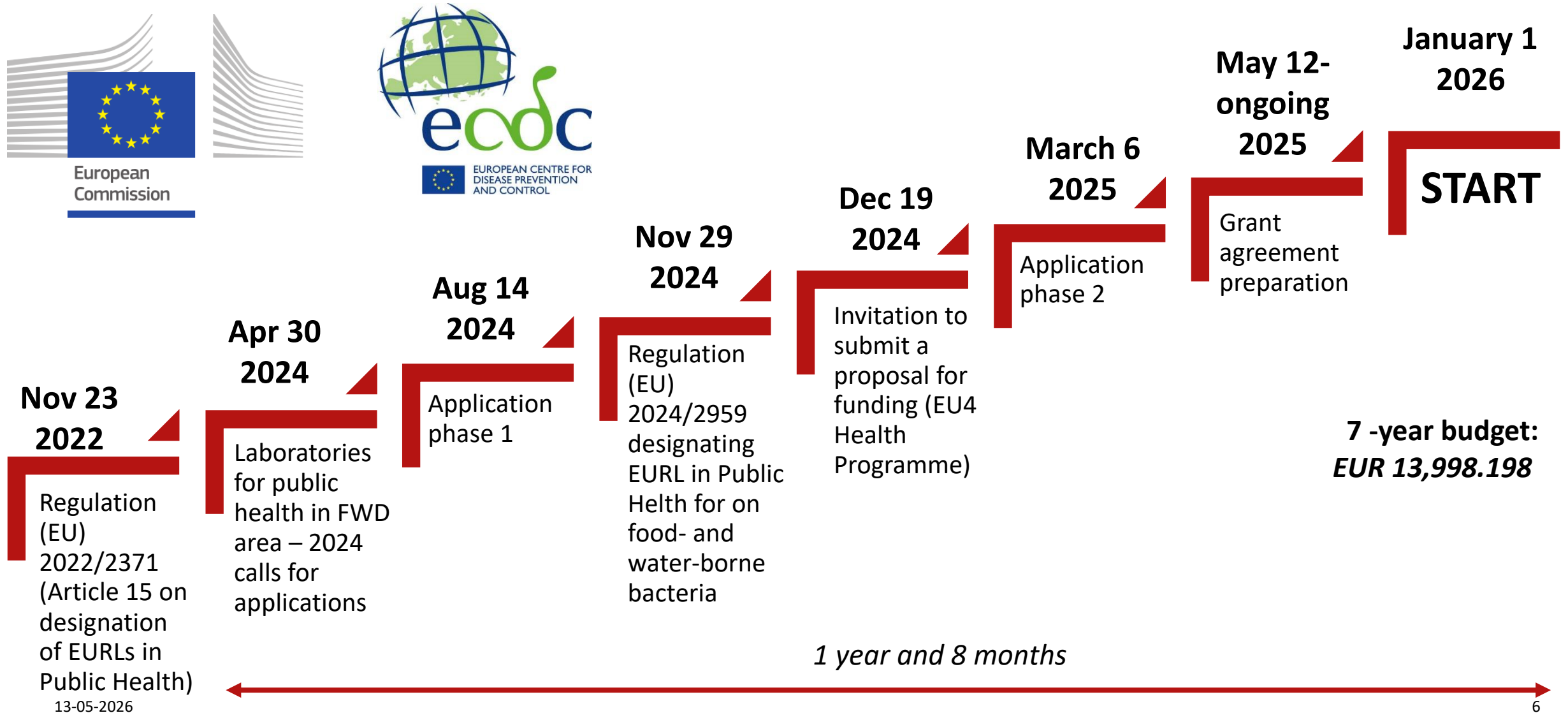
State of play: EURL designation

9 EURLS have been designated to date:

-  Antimicrobial resistance (AMR) in bacteria
-  Diphtheria and pertussis
-  Emerging, rodent-borne and zoonotic viral pathogens
-  Food- and water-borne bacteria
-  Food- and water-borne viruses
-  Food-, water- and vector-borne helminths and protozoa
-  High-risk, emerging and zoonotic bacterial pathogens
-  *Legionella*
-  Vector-borne viral pathogens



Implementation process of EURL-PH-FWDB



The consortium



SSI, Denmark



National Institute for Public Health
and the Environment
Ministry of Health, Welfare and Sport

RIVM, Netherlands



ISS, Italy



Eva Møller Nielsen
Consortium coordinator



Egle Kudirkiene
Project manager



Maaïke van den Beld
Unit Head



Stefano Morabito
Unit Head

Role in health security

- ***Enhance the national- and EU- level capacity to prevent, prepare for, and respond to cross-border health threats***
- ***Ensure a harmonised and effective response to food- and waterborne health threats across the EU***

Main objectives



Coordinate and strengthen collaboration between the network laboratories



Provide targeted training and technical support



Foster cross-sectoral and global collaboration

The scope



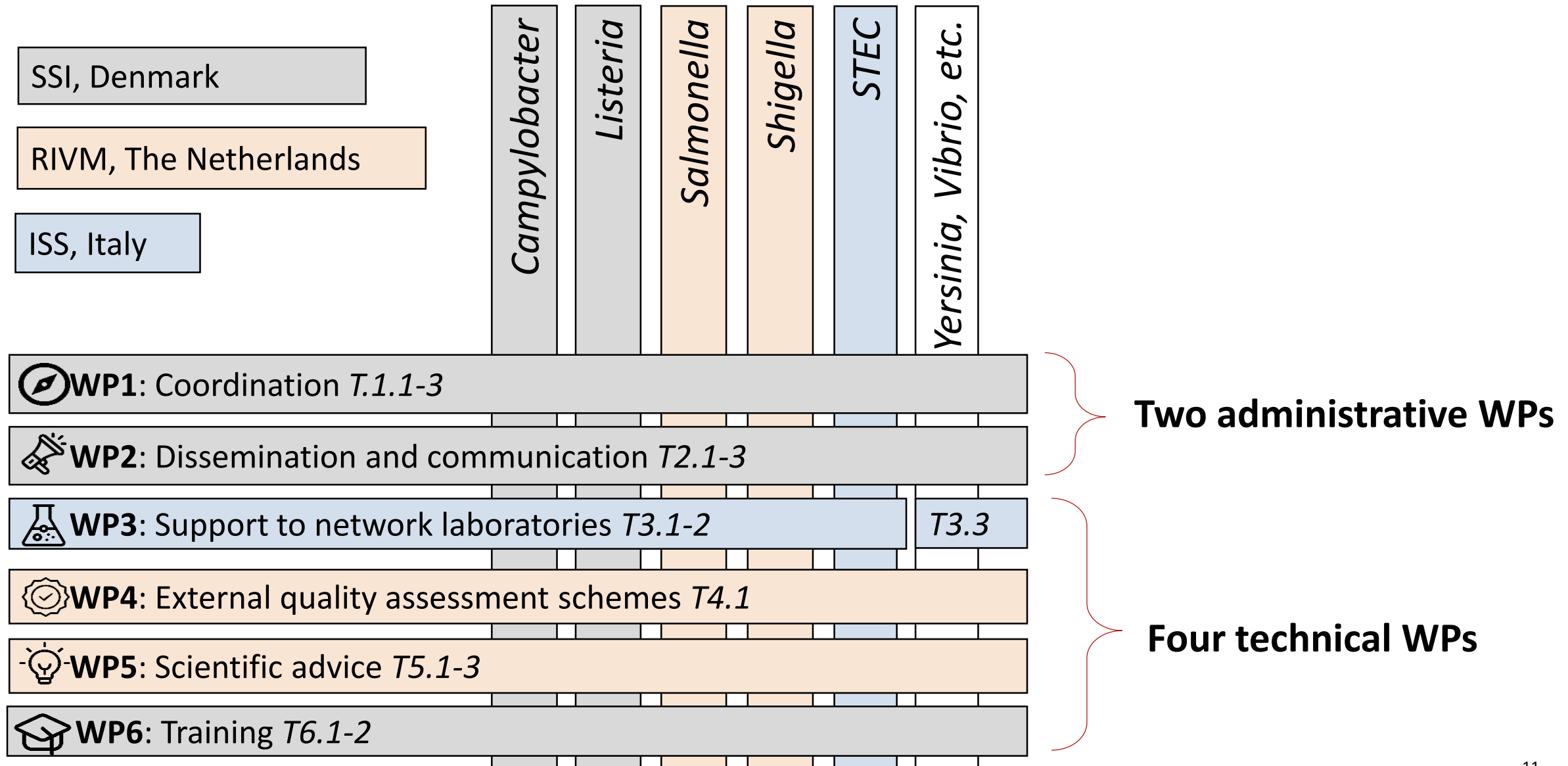
Main pathogens:

- *Campylobacter* spp.
- *Listeria monocytogenes*
- *Salmonella* spp.
- *Shigella* spp.
- Shiga toxin-producing *Escherichia coli* (STEC)

Also in the scope:

- *Vibrio* spp.
- *Yersinia* spp. (excluding *Y. pestis*)

Work packages and pathogen distribution

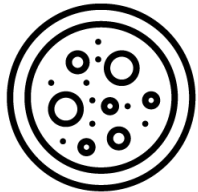


Activities to support the network laboratories



Reference diagnostics and characterisation services

- Five main pathogens
- Challenging and atypical samples
- SOPs, protocols, etc.



Reference materials

- Five main pathogens
- Reference strains
- PCR target sequences
- WGS controls



Scientific advice and technical support

- All pathogens
- Methods (implementation, validation)
- Result interpretation
- Quality assurance



EQAs in Public Health

Since 2007 ECDC is responsible for EU - wide surveillance of FWD infections

Since 2012 ECDC is responsible for EQAs, provided by contractors, to assess the quality and comparability of typing data reported by NPHRLs participating in FWD-Net

The main objectives of EQA schemes are to:

- assess general standard of performance ('state of the art')
- assess effects of analytical procedures (method principle instruments, reagents, calibration)
- evaluate individual laboratory performance
- identify of problem areas
- provide continuing education
- identify needs for training activities



EQAs in Public Health

Molecular typing:

- STEC
- *Listeria*
- *Salmonella*

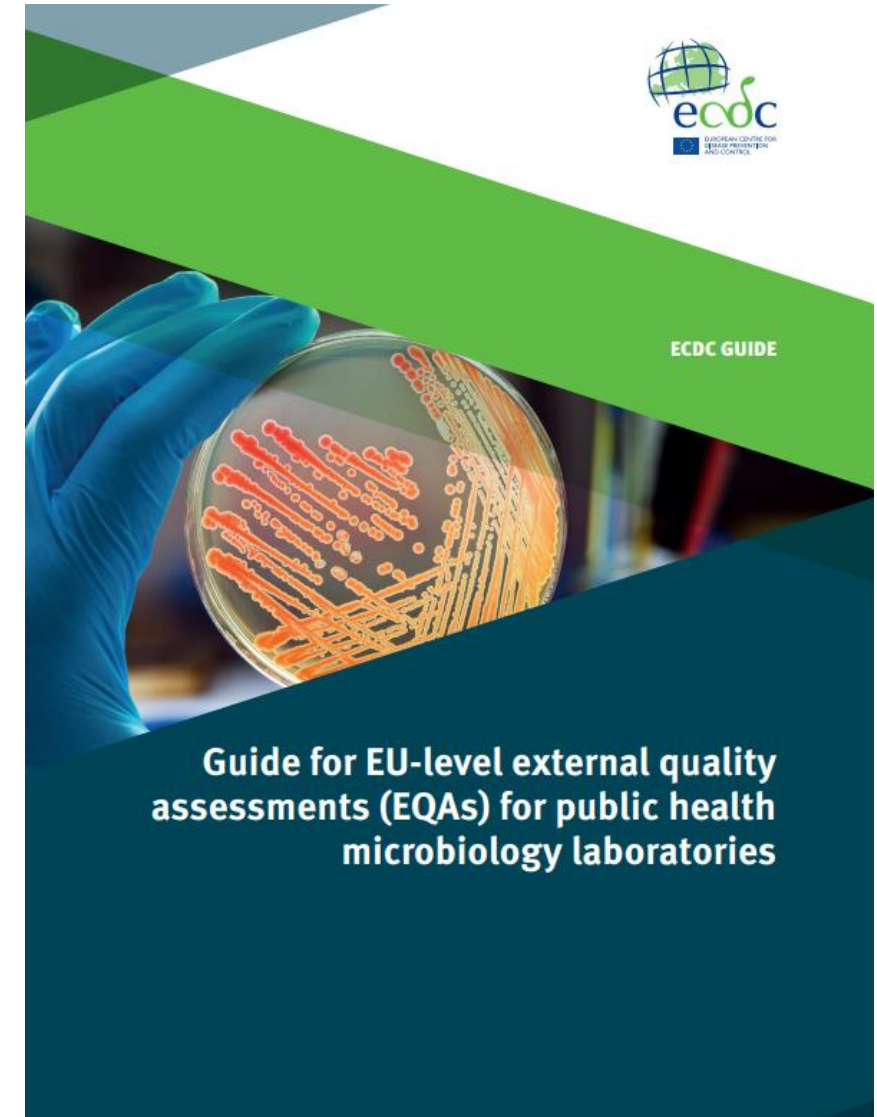
Antimicrobial susceptibility testing

- *Salmonella*
- *Campylobacter*

		Years (Rounds)									
		2012-2013	2013-2014	2014-2015	2015-2016	2017-2018	2018-2019	2019-2020	2020-2021	2022-2023	2023-2024
Listeria	Serotype	X	X	X	X	X	X	X	X	X	X
	PFGE assessment and analysis	X	X	X	X						
	Cluster analysis (PFGE/WGS)					X	X	X	X	X	X
STEC	Serotype	X	X	X	X	X	X	X	X	X	X
	Virulence profile	X	X	X	X	X	X	X	X	X	X
	Phenotypic test	X	X	X	X						
	PFGE assessment and analysis	X	X	X	X						
	Cluster analysis (PFGE/WGS)					X	X	X	X	X	X
Salmonella	Phage typing STm and SE	X									
	MLVA STm	X	X	X	X	X	X	X	X	X	X
	MLVA SE					X	X	X	X	X	X
	PFGE assessment and analysis	X	X	X	X	X					
	Cluster analysis (PFGE/MLVA/WGS)					X	X	X	X	X	X

EQAs in Public Health

- Will be conducted similarly as in previous contracts with ECDC
- Follows ECDC guideline for EQAs 2025, that *provides a set of principles for EURLs for public health on how to plan, coordinate, and implement EU-level EQAs for public health microbiology laboratories*
- The yearly EQA plan and individual plan of each EQA will be agreed with ECDC



External quality assessment schemes (EQAs)

35 EQAs in 7-year period

- At least one EQA per pathogen each year

	<i>Salmonella</i>	<i>Listeria</i>	STEC	<i>Shigella</i>	<i>Campylobacter</i>
Species ID					✓
Serotyping	✓		✓	✓	
Genotyping	✓	✓	✓	✓	✓
Cluster analysis	✓	✓	✓	✓	✓
Bioinformatic pipelines for cluster analysis	✓	✓	✓	✓	✓
AST	✓			✓	✓
Bioinformatic pipelines for AMR analysis	✓			✓	✓

- Organised for each pathogen separately
- Occurs 3-7 times in 7-year period, depending on the organism

- Organised for different organisms combined
- Occurs every second year

Training activities

- all pathogens

Focus on laboratory topics, including core functions of reference laboratory

- Specific laboratory methods, data analysis and interpretation, QA, etc.

- **In-person trainings (2 per year)**
- **Scientific and technical webinar (1 per year)**

The topics will be identified based on the network laboratories' needs gathered from:

- Previous experiences (first year)
- Network surveys
- EQAs results
- Other network laboratory support activities

Scientific advice and technical assistance to ECDC

- all pathogens

Participation in ECDC-EFSA Advisory Board meetings

- Management and sharing of cross-sector molecular typing data

Scientific advice based on expert opinion and/or network surveys

- Applicable methodologies in use
- Capability/gaps or specific aspects of pathogens in scope

Information, guidance and/or support in outbreak situations

- Interpretation of the data and the signals derived from the surveillance data, including genomic data

Contribution to ECDC risk assessments

- Appropriate methodologies for detection and characterisation of pathogens in scope
- Specific features of pathogens in scope



EURLs role in outbreak support to ECDC

In case of a confirmed multi-country outbreak or other unusual event, the **EURL will provide information, guidance and/or support to ECDC** on microbiology-related matters

The EURL will contribute to ECDC risk assessments or to **ECDC and EFSA's joint outbreak assessments** upon request

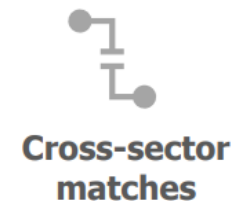
Commission regulation 2025/179 on *Salmonella*, *Listeria*, *E. coli* and *Campylobacter* WGS associated or suspected to be associated to outbreaks



RAPID OUTBREAK ASSESSMENT

Multi-country outbreak of Shiga toxin-producing *Escherichia coli* infection associated with haemolytic uraemic syndrome
5 April 2016

AVAILABILITY OF CROSS-SECTOR WGS DATA IS CRITICAL FOR DETERMINING THE CAUSE OF THE OUTBREAK, BOTH AT THE NATIONAL AND AT THE EU LEVEL



Coordination of project activities, communication and dissemination of project results



Annual meetings for the EURL network laboratories



- Project leaflet
- Annual newsletters
- Project reports



Mailbox



EURL-PH-FWDB website

- The EURL network laboratories
- ECDC
- European Commission
- Other EURLs in PH and food and feed
- Other initiatives
- General public
- International audiences

Coordination of work with EURLs across the sectors



EURLs in Public Health are coordinated by ECDC:

- Annual face-to-face meetings in Luxembourg organised by ECDC
- Monthly catch-up meetings online
- Share Points for communication between EURLs, ECDC and the network laboratories

EURLs in food and feed:

- We will establish contacts with EURLs in food and feed for all pathogens in scope and AMR: *EURL VTEC, EURL Salmonella, EURL Campylobacter, EURL Listeria, EURL AMR*
- We will participate in annual laboratory network meetings of EURLs in food and feed and invite them to our laboratory network meetings
- We will collaborate on One Health aspects of our work according to the needs

Thank you

